REMARKS

INTRODUCTION

In accordance with the foregoing, claims 1, 3, 5, 7 and 16 have been amended. Claims 2, 8, 15 and 17 have been cancelled. Claims 1, 3-7 and 16 are pending and under consideration.

CLAIM REJECTIONS

Claims 1-6 and 15-17 were rejected under 35 USC 102(b) as being anticipated by Son et al. (US 6,282,161) (hereinafter "Son").

Claims 7 and 8 were rejected under 35 USC 103(a) as being unpatentable over Son in view of Nishiwaki (US 6,704,254) (hereinafter "Nishiwaki").

Son discusses an optical recording and reproducing apparatus, tilt adjusting method appropriate therefor, and recording control method. In Son, a jitter detector 34 detects the amount of jitter of the reproducing signal generated by the reproducing signal generator 32. The tilt controlling unit 36 feeds the amount of the jitter of the reproducing signal generated by the jitter detector 34 back to a tilt driving circuit unit 40 to control the tilt angle of the optical pickup 20. The output of the tilt driving circuit unit 40 is output to the tilt driving unit 30 which in turn drives the tilt driving unit 28. The tilt driving unit 28 rotates (tilts) the optical pickup support unit 24 about the fixing support 22. Son, 4:46-4:56 and Figure 2.

Further in Son, the optical pickup 20 is moved to a drive test zone located in the outer circumference of the disk, and the test signal is recorded on the drive test zone at the outer circumference of the disk, and a focus and the tracking state are optimized such that the jitter of the recording (reproduced test signal) signal is a minimum (step 708). The tilt driving unit 28 is driven to detect the output S_outrec of the displacement sensor 26 from a point in which the jitter of the recording signal is a minimum (step 710). Then, optimum displacement values S_inrec and S_outrec in which the jitter of the inner and outer circumferences, respectively, of the disk, are minimized are stored in the memory 38 (step 712). The tilt control value is calculated at the recording position by interpolation with reference to the outputs S_inrec and S_outrec stored in the memory 38 during recording of the disk (step 714). The calculated tilt adjustment value is

applied to the tilt driving unit 28 to adjust the tilt of the optical pickup to record data (step 716). Son, 7:12-7:33 and Figure 7.

Claims 1, 2, 7 and 8

Amended claims 1 and 7 recite: "...the recording or reproducing sector of the disc is based on information on the position of a pickup based on the number of pulses for driving a motor for controlling movement of the pickup in the disc drive." Support for these amendments may be found in at least claims 2 and 8, respectively.

In the Office Action, in the Response to Remarks section, the Examiner notes that Son teaches the limitation of claim 1 where if the tilt angle is not found in the memory, the tilt angle of the disc is corrected using the calculated tilt angle. In previous responses, the Applicant's have argued that optimum tilting adjusting values for a recording or reproducing sector are not searched for in the memory of Son. Instead, Son discusses that the tilt control value is calculated at the recording position by interpolation with reference to the outputs S_inrec and S_outrec stored in the memory 38 during recording of the disk, which is step S714 of Son.

In their present amended form, claims 1 and 7 recite how the recording or reproducing sectors are formed and clarify the limitation of searching a memory in the disc drive for a tilt angle for a recording or reproducing sector of the disc in which the tilt is detected. In Son, no recording or reproducing sectors are discussed. To the contrary, every time a tilt control value is needed in the method of Son, an interpolation with reference to the outputs S_inrec and S_outrec stored in the memory must be performed. According to claims 1 and 7, each recording or reproducing sector of the disc, which is determined based on the number of pulses for driving a motor for controlling movement of the pickup, becomes a sector in which a tilt is only corrected one time.

This technical feature of claims 1 and 7 is directed to solving the problem where when data is repeatedly reproduced from a disc that is tilted, a tilt correcting operation is repeatedly performed in the same sector of the disc and therefore inefficiently performs the tilt correcting operation.

Further, in regards to claim 7, this deficiency in Son is not cured by Nishiwaki, which was relied upon to show an optical disk control method encoded in a computer readable medium.

Claims 2 and 8 have been cancelled.

Withdrawal of the foregoing rejection is requested.

Claims 3-6 and 15

Amended claims 3 and 5 recite: "...wherein the memory stores a position information for each of the plurality of recording and reproducing sectors of the disc expressed as a number of pulses necessary to drive a stepping motor of the disc drive." Support for these amendments may be found in at least claim 15.

In the Office Action, in the Response to Remarks section, the Examiner notes that claims 3 and 5 merely claimed a memory that stores a tilt angle for each sector but does not claim how and when to obtain it. The Examiner further stated that the prior art of Son's calculated tilt values over the whole disc are considered the tilt angles for each sector.

To the contrary, it is respectfully submitted that Son discusses that the tilt control value is calculated at the recording position by interpolation with reference to the outputs S_inrec and S_outrec stored in the memory 38 during recording of the disk, which is step S714 of Son.

In their present amended form, claims 3 and 5 recite how the recording or reproducing sectors are formed and clarify the limitation that the memory stores position information for each of the sectors of the disc. In Son, no recording or reproducing sectors are discussed. Or if the argument is made that the whole disc is a single sector, it is still respectfully submitted that Son does not discuss a plurality of sectors as recited in claims 3 and 5. And further, in the one sector of Son, every time a tilt control value is needed an interpolation with reference to the outputs S_inrec and S_outrec stored in the memory must be performed. To the contrary, the apparatus of claims 3 and 5 includes a controller that, if the tilt of the disc is detected, searches the memory for the tilt angle for the recording or reproducing sector of the disc wherein the pickup is currently positioned, and controls driving of the motor using the searched tilt angle.

This technical feature of claims 3 and 5 is directed to solving the problem where when data is repeatedly reproduced from a disc that is tilted, a tilt correcting operation is repeatedly performed in the same sector of the disc and therefore inefficiently performs the tilt correcting operation.

Claim 15 has been cancelled. Claims 4 and 6 depend on claims 3 and 5, respectively, and are therefore believed to be allowable for at least the foregoing reasons.

Withdrawal of the foregoing rejection is requested.

Claims 16 and 17

Amended claim 16 recites: "...wherein the recording or reproducing sector of the disc is based on information on the position of a pickup based on the number of pulses for driving a motor for controlling movement of the pickup in the disc drive." Support for this amendment may be found in at least claim 17. It is respectfully submitted that Son does not discuss dividing a disc into recording or reproducing sectors and therefore does not anticipate claim 16.

Claim 17 has been cancelled. Withdrawal of the foregoing rejection is requested.

CONCLUSION

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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